Supervised exercises are more effective for subacromial pain than extracorporeal shockwave treatment

Synopsis

Summary of: Engebretsen K, Grotle M, Bautz-Holter E, Sandvik L, Juel NG, Ekeberg OM, et al (2009) Radial extracorporeal shockwave treatment compared with supervised exercises in patients with subacromial pain syndrome: single blind randomised study. *BMJ* 339: b3360. [Prepared by Nicholas Taylor, CAP Editor.]

Question: Do supervised exercises improve shoulder pain and disability more than radial extracorporeal shockwave treatment in patients with subacromial impingement of the shoulder? ***Design***: Randomised, controlled trial with concealed allocation and blinded outcome assessment. ***Setting***: An outpatient clinic in Norway. ***Participants***: Adults with shoulder pain for at least 3 months and with clinical signs of subacromial impingement were included. Key exclusion criteria included previous shoulder surgery, shoulder instability, and rheumatoid arthritis. Randomisation allocated 52 patients to supervised exercises and 52 patients to radial extracorporeal shockwave therapy. ***Interventions***: The exercise group participated in two 45-minute sessions each week for up to 12 weeks. The exercise sessions were supervised by a physiotherapist and emphasised reducing subacromial stress (including the use of manual techniques), relearning normal movement patterns, and progressing to loaded rotator cuff endurance training. The comparison group received radial extracorporeal shockwave treatment administered to 3–5 tender points once a week for 4–6 weeks. ***Outcome measures***: The primary outcome was the difference in shoulder pain and disability at 6, 12, and 18 weeks. It was measured with the shoulder pain and disability index (SPADI)-a self-report questionnaire with scores ranging from 0 to 100; higher scores indicate worse shoulder pain and disability. Secondary outcome measures included pain intensity during rest and activity, specific questions about shoulder function, and work status. ***Results***: One hundred participants completed the study. The median number of treatments were 14 in the exercise group and 5 in the comparison group. The treatment effect significantly favoured the exercise group at 6, 12, and 18 weeks, with a difference of –8 units on the SPADI (95% CI –16 to –1) at 18 weeks. At 18 weeks a higher proportion of the exercise group improved by at least the smallest detectable amount (19.6 units) on the SPADI (NNT 4, 95% CI 2 to 12). At 18 weeks a higher proportion of the exercise group had returned to work (NNT 4, 95% CI 2 to 19). The groups did not differ significantly on the remaining secondary outcomes. ***Conclusion***: A physiotherapy program emphasising supervised exercises was more effective than extracorporeal shockwave treatment in reducing pain and disability in patients with subacromial pain in the shoulder.

[NNTs calculated by the CAP Editor.]

Commentary

This single blind randomised study suggests that supervised exercises combined with some manual therapy techniques for shoulder pain (Bohmer et al 1998, Baltaci 2003) are superior to extracorporeal shockwave treatment for decreasing shoulder pain and disability.

There is recent evidence that extracorporeal shockwave treatment when compared to sham treatment can be effective in reducing pain and restoring function for patients with calcific tendinitis with negligible complications (Hsu et al 2008). One possible limitation of the Engebretsen et al (2009) trial is that we do not know what proportion of their participants had the diagnosis of calcific tendinitis; the participants who would be expected to be most responsive to shockwave therapy. However, the trial did include similar numbers of participants in both groups with symptoms of greater than 6 months, which has been associated with the development of calcific tendinitis (Green et al 1998).

Although the authors emphasised the supervised exercise component of their intervention, the manual therapy component was not well described. There is other evidence supporting the combined use of manual therapy and exercise in the treatment of shoulder impingement syndrome (Suronkok et al 2009, Senbursa et al 2007). Because patients need support on how to deal with pain and dysfunction in the early rehabilitation phase, scapular mobilisation is a useful manual therapy technique to apply to patients to gain an initial improvement in shoulder range of motion and function (Suronkok et al 2009). In a randomised clinical trial by Senbursa et al (2007), patients treated with manual physical therapy applied by experienced physical therapists combined with supervised exercise showed improvement including increasing strength, decreasing pain, and improving function compared to treatment with an exercise program alone.

Based on the positive results of the Engebretsen trial and other recent literature, future research should attempt to discern the relative contributions of manual therapy and supervised exercises to improvements in patients presenting with shoulder pain.

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